Group III: Claims 19 through 23, directed to a method for identifying polypeptide pharmacofamilies;

Group IV: Claims 24 through 32, directed to a method for identifying a member of a polypeptide pharmacofamily;

Group V: Claim 33, directed to a method of modeling three-dimensional structure of a polypeptide;

Group VI: Claims 34 through 36, directed to a method for constructing a ligand conformer model;

Group VII: Claim 37, directed to a method for constructing a pharmacophore model;

Group VIII: Claim 38, directed to a method for identifying a binding compound;

Groups IX-XVI: Claim 39, as it pertains to pharmacoclusters 1 through 8, respectively;

Groups XVII-XXIV: Claim 40, as it pertains to pharmacofamilies 1 through 8, respectively;

Groups XXV-XXXII: Claim 41, as it pertains to polypeptides that bind to pharmacoclusters 1 through 8, respectively;

Groups XXXIII-XL: Claims 42 and 43, as they pertain to coordinates of models 1 through 8, respectively; and

Groups XLI-XLVIII: Claim 44, as it pertains to pharmacophore models 1 through 8, respectively.

Applicants traverse the Restriction Requirement for the reasons stated below. Nevertheless, Applicants elect for prosecution on the merits the claims of Group III, claims 19-23, directed to a method for identifying polypeptide pharmacofamilies. Applicants reserve the right to pursue prosecution of the non-elected claims in a later filed application claiming the benefit of priority of the above-identified application.

Applicants traverse the Restriction Requirement with respect to the division of the claims of Group III from the claims of Group I because a thorough search of Group III will necessarily reveal art relevant to Group I. More specifically, claim 19 (of Group III) recites a step (a) of determining bound conformations of a ligand bound to different polypeptides of a polypeptide family, the search of which would reveal art relevant to claim 1 (of Group I) which recites a step (a) of determining bound conformations of a ligand bound to different polypeptides. Moreover, a search of claim 19 which recites a step of identifying two or more bound conformations of the ligand having substantially different bound conformations would reveal art relevant to claim 1 which recites a step of clustering two or more bound conformations of a ligand having substantially the

same bound conformation. Accordingly, although the claims of Group III are patentably distinct from the claims of Group I, a search of the claims of Group III would include art relevant to claims of Group I such that examination of the claims of Groups I and III together would not pose a serious burden to the Examiner.

Applicants further submit that a thorough search of Group III will necessarily reveal art relevant to Groups VI, VII and VIII. Thus, although the claims of Group III are patentably distinct from the claims of Groups VI, VII and VIII, a search and examination of the claims of Groups III, VI, VII and VIII together would not pose a serious burden to the Examiner.

For the reasons set forth above, Applicants respectfully request that the Examiner rejoin the claims of Groups I, VI, VII and VIII with the claims of elected Group III for prosecution on the merits as examination of all five groups of claims would not be an undue burden.

The Office Action states that upon election of any single one of Groups I-VIII an election of species is required. In this regard, the Office Action alleges that the claims of Groups I-VIII are directed to a plurality of patentably distinct species of ligands such as those listed in claims 3, 4 and 5 which require a burdensome classification and/or bibloigraphic, manual and computer search. Applicants elect with traverse the species of ligand as oxidized nicotinamide adenine dinucleotide (NAD).

Applicants request that the species reduced nicotinamide adenine dinucleotide (NADH), oxidized nicotinamide adenine dinucleotide phosphate (NADP) and reduced nicotinamide adenine dinucleotide phosphate (NADPH) be examined with the elected species, NAD. These four compounds have similar structure and function. Additionally, many enzymes bind and use these compounds interchangeably. Furthermore, as demonstrated in Examples I and II, polypeptide pharmacofamilies identified by the methods of the invention can include members that bind to NAD, NADH, NADP and NADPH (see, for example, page 71, lines 1-24 and Figure 1 of the application). Accordingly, these four species should be searched and examined together.

Further, Applicants understand that the election of a single disclosed species is a provisional election and that if no prior art is found which anticipates or renders obvious the elected species, search of the claims will be extended to the extent necessary to determine patentability of the generic claims.

The Office Action requests that all claims readable on the elected species be indicated. It is respectfully submitted that the claims readable on the ligand species NAD are claims 1, 2, 4-7, 9-15, 17-20, 24-27, 31, 33-44. These same claims are readable on the species of NADH, NADP and NADPH.

The Office Action also requests that a chemical structure of the elected ligand species be provided if not already contained in the specification. Applicants respectfully

submit that the chemical structure of NAD is provided in the application, for example, in Figure 2, where the moiety attached to the C2'A carbon is hydroxyl (OH). As shown in Figure 2, NADP has a similar chemical structure except that a phosphate group is attached to the C2'A carbon in place of hydroxyl. The structures of NADH and NADPH are similar to the structures of NAD and NADP, respectively, except that the nicotinamide ring is reduced having an additional proton attached to C4N. Structures for NAD, NADH, NADP and NADPH are also provided in Figures 1 and 3 (hydrogens not shown).

CONCLUSION

Applicants appreciate the Examiner's reconsideration of the Restriction and Election of Species Requirements. The Examiner is invited to call the undersigned agent or Cathryn Campbell if there are any questions regarding this application.

Respectfully submitted,

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